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SUPERFUND DIVISION

DEPARTMENT OF NATURAL RESOURCES

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October 21, 2004

Ms. Josephine Newton-Lund
Attn: CENWK PMES
USACE, Kansas City District
Environmental Programs Branch
Room 632, 700 Federal Building
601 E. 12th St
Kansas City, MO 64106-2896

Hanley (SLOP)
ID: MO3210090038
Break: LrO
Other: LAF
10/21/04

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SUPERFUND RECORDS

RE: *Draft Remedial Investigation Work Plan For Activities at the Hanley Area former St. Louis Ordnance Plant (SLOP), St. Louis, Missouri*

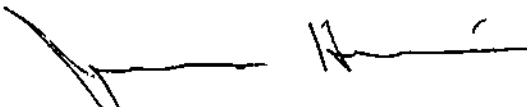
Dear Ms. Newton-Lund:

The Federal Facilities Section of the Hazardous Waste Program has reviewed the above referenced document and provides the enclosed comments. The department looks forward to discussing the comments and reviewing the Army responses. The department would like to commend the USACE on the excellent summary of the historical use of the site.

If you have any questions regarding this letter or need further information you may contact me at (573) 526-2736. Direct written inquiries to P.O. Box 176, Jefferson City, MO 65102-0176.

Sincerely,

HAZARDOUS WASTE PROGRAM


James R. Harris, Environmental Specialist III
Department of Defense Unit

JH:dd

c: Mr. Tom Lorenz, U.S. Environmental Protection Agency – Region VII

Integrity and excellence in all we do



**Missouri Department of Natural Resources
Comments on
Draft Remedial Investigation Work Plan
Former St. Louis Ordnance Plant (SLOP)
St. Louis, Missouri**

September 2004

- 1) Section 1.1, first paragraph, page 1-1: The purpose of the remedial investigation is to determine the nature and extent of all contamination at the site, not just that attributable to the Department of Defense.
- 2) Section 1.1, second paragraph, page 1-1: See comment 1 above.
- 3) Section 2.4.6, first paragraph, page 2-5/2-6: The USACE must keep the current zoning in mind during the remedial investigation since the remediation of the property must allow for the current zoning.
- 4) Section 2.4.6, second paragraph, page 2-6: The department does believe ordinances exist prohibiting private wells, however, USACE research has not confirmed the ordinance exists. Inquires have been made to the city regarding the ordinance, but the department has not yet received verification.
- 5) Section 2.5.1, first bullet, page 2-6: What manufacturing processes used the metals identified within the buildings, particularly mercury and cadmium?
- 6) Section 2.5.1, second bullet, page 2-6: The 89th RSC has indicated that all the buildings within the fence are scheduled for demolition and has evaluated these structures for contamination in preparation for demolition. However, building 220 has not been sampled and found safe for either demolition or reuse. The Army must evaluate the structure for contamination and safety before the department will close the site. Therefore, the Army should evaluate all roof vents, floor drains, and the shop area to be sure the building is safe for reuse/demolition.
- 7) Section 2.5.1, third bullet, page 2-6: These results, along with the results of the other studies, strongly suggest the sewer piping, in particular the joints could contain explosive residues. How does the USACE plan on addressing the sewer pipes and who will clear them as an explosive risk?
- 8) Section 2.5.6, page 2-9: The department has not received a copy of this report, please provide one for departmental files.
- 9) Section 2.5.6, page 2-9: On each figure, please indicate the sample locations and analytical results for samples that are a potential concern based upon current zoning.

- 10) Section 3.1.1, last paragraph, page 3-1: Although remediation of groundwater contamination may not be selected during the feasibility study/proposed plan, if contamination is present above drinking water standards the department will require a land use control to ensure there is no exposure. Therefore, the department will expect the USACE to investigate and monitor groundwater.
- 11) Section 3.1.2, third paragraph, page 3-2: If the USACE plans on evaluating PAHs against background, the work plan should indicate the locations and the number of background samples to be collected to comprise the background data base.
- 12) Section 3.2.1, page 3-3: Please indicate on figure 3-1, and all other figures, what screening value was exceeded or simply indicate all the sample locations that exceed a residential screening criteria. In addition, the department would appreciate the USACE using bold type in the data tables for all sample results that exceed a screening value.
- 13) Section 3.2.3, first paragraph, page 3-4: In previous meetings the department indicated sampling could be weighted toward areas with higher probabilities of contamination, however, the department did not mean to imply that some areas should go completely uninvestigated. Some level of sampling needs to occur in all areas to confirm they are clean before the property can be released for residential or commercial reuse. Surface soil samples need to be collected within the bunkers, between the gymnasium and the bunkers, between the bunkers and the perimeter fence, around the powder wells, beneath building floors and between the 218 and 219 buildings.
- 14) Section 3.2.3/Figure 3-1: The department recommends developing triggers or screening levels for conducting TCLP analysis since this would allow for waste profiling for remediation.
- 15) Section 3.3.2, page 3-5: Due to the current condition of the property and uncertain future reuse, the department believes these soils present more than a trenching risk. Demolition of the current site structures could easily bring these soils to surface, not to mention any new construction that will occur in the future. The Army needs to carefully consider the risks soil contamination at these depths present and what remedy will prevent anything other than a trenching exposure.
- 16) Section 3.3.3/ Figure 3.2, page 3-5: Why has the Army elected to not collect samples from 1-2 feet in areas where there is known surface contamination in an effort to define extent? In addition, the department noticed areas where contamination was found at 1-2 feet and not on the surface; for example adjacent to 227M. Can the Army explain how this would happen?
- 17) Section 3.3.3, page 3.5: The department disagrees that 1-2 feet is a typical trenching depth. Most utilities are at a minimum, 3-4 feet in depth. In addition, although no explosives were detected in previous events, they were hardly exhaustive in extent. Explosives should be

Page Three

added to the analytical suite. The purpose of a remedial investigation is to determine if contamination is present, not eliminate PCOCs before mobilization.

- 18) Section 3.4.1, first paragraph, page 3-5: The department believes residential screening criteria are the most appropriate since that is how the property is zoned.
- 19) Section 3.4.2, page 3-6: The department strongly disagrees that soil from 2 feet to depth is not likely to ever be contacted? A chain link fence needs a hole deeper than 2 feet, an electrical service and water line are at least 3 feet deep, and a sewer service and building footing are deeper than 2 feet. The department would more readily believe soils from 4 or 5 foot to depth would rarely be contacted, however, a basement would surpass this depth.
- 20) Section 3.4.3, second paragraph, page 3-6: The department would also like the Army to sample for PCBs adjacent to and within the powder wells. PCBs were found in numerous powder wells at LCAAP and may also be present at this site.
- 21) Section 3.4.3, second paragraph, page 3-6: Upon completion of the RI the Army must have subsurface data from beneath all the powder wells for all appropriate analytes.
- 22) Section 3.4.3, third paragraph, page 3-6: The Army must provide documentation from qualified Army staff that the sewer piping is not an explosive risk. Therefore, the Army may want to consider removing several sections of piping so the explosive risk can be adequately evaluated.
- 23) Section 3.5.1, fifth bullet, page 3-7: As mentioned previously, PCBs have been found in the powder wells at LCAAP and must be evaluated at the Hanley area also.
- 24) Section 3.5.1, sixth bullet, page 3-7: What other locations had metal exceedances and why do they pose no risk under a residential scenario? Please remember the purpose of a RI is to first define nature and extent, then evaluate the risks presented.
- 25) Section 3.5.1, sixth bullet, page 3-7: Please explain what would prevent someone from removing sediment from a powder under a residential scenario?
- 26) Section 3.5.1, sixth bullet, page 3-7: Please remember some materials (i.e. DNT) may be a listed waste and may not be left on site.
- 27) Section 3.5.2, first sentence, page 3-8: If trespassing occurs? Trespassing is rampant at this site.
- 28) Section 3.5.2, second sentence, page 3-8: The 89th RSC will complete demolition of the 218 Buildings this fall, although the removal of the remainder is unplanned and is dependent on funding being provided. Relying on asbestos abatement to remediate a site is inappropriate

- and if RCRA waste is not being handled properly, it is a violation of state rules. The Army is conducting a RI, therefore, the Army must define nature and extent.
- 29) Section 3.5.2, third sentence, page 3-8: The department disagrees that exposure is dependent on the criteria listed and groundwater ingestion is the only exposure route. Exposure will also occur if someone removes the powder wells, sewers or tunnels, all highly probable if the site is redeveloped. Therefore, the department is concerned about worker exposure during removal and site users following removal if the contents are spread about the site.
- 30) Section 3.5.3, page 3-8: The Army cannot sit back on its laurels and hope asbestos abatement sometime in the future will remove sediment contamination. This is a RI, the Army must define the nature and extent and then evaluate risks. Please add a description of the work that will be performed to define the nature and extent of sediment contamination.
- 31) Section 3.6.2, page 3-9: Indoor air/inhalation could be an exposure pathway, particularly if a basement is installed. Dermal contact may also be possible in a construction worker scenario.
- 32) Section 3.6.2, page 3-9: Based upon communication with the USACE, it has not yet been documented that ordinances prohibiting the installation of drinking water wells exists.
- 33) Section 3.6.3, page 3-9: The department suggests installing additional wells in the vicinity of the MW-101 and MW-105 to be sure the nature and extent of the TCE and carbon tetrachloride contamination is complete and allows for accurate indoor air modeling. In addition, a quarterly groundwater monitoring program should be established to evaluate groundwater over time to be sure contaminant fluctuations are assessed.
- 34) Section 4.3, page 4-1: In addition to water use, sufficient data must be collected to evaluate indoor air as an exposure.

Department of Health and Social Services Comments

General Comments:

- 35) The Department of Health and Social Services (DHSS) would like to meet with the Army to discuss the RIWP, particularly the risk assessment.
- 36) DHSS would like to see a time line for the project. What is the future plan for the site? What is the current zoning? Is the Job Corps taking ownership of the site? Section 4.3 mentions the need for this information. This type of information will influence the type of receptors DHSS should consider in the risk assessment. DHSS needs more information on the Job Corps personnel and the age and duration of residency of the youths who occupy the dormitory.

- 37) Because Hanley Industries manufactured components such as explosive bolts that were used for, presumably, rockets, has the facility ever been tested for perchlorate in the groundwater? Is there any reason for Hanley Industries or any other previous occupant to have used perchlorate?
- 38) Because of the uncertainty of the construction of the powder wells, please provide a diagram of the powder well construction.

Specific Comments:

- 39) DHSS is concerned that the different analytical methods used for soil, sediment, and groundwater samples among the previous investigations may contribute to the uncertainty of the data. This uncertainty should be thoroughly discussed in the risk assessment. A review of the data analysis and quality control procedures should be done to validate the sample results of these historical datasets.
- 40) Section 2.4 mentions the method of compositing surface soil samples. DHSS has several questions about the sampling methodology: A) What EPA sampling methodology will be used for metals and SVOCs? B) What impact will compositing have on the concentration of SVOCs? C) How will USACE assess variability among sample locations? D) Will compositing the sample increase or decrease sample variability? E) Has the USACE considered the use of laser-induced fluorescence (LIF) to screen samples for PAHs in the field?
- 41) Please describe the rationale for 0-1 foot sample depths and the shallow subsurface sample depth of 1-2 feet.
- 42) Figure 2.2 shows the 15 direct push sample locations that are mentioned in the text on page 3-8, but Figure 3.5 does not illustrate all 15 locations. The text on page 3-9 also mentions that metals were detected in "the 12 direct push groundwater samples." What happened to the DP-8, DP-9, DP-12, and DP-14 sample locations, and why were they eliminated? Is Table 3-7 accurate as a result of this discrepancy?

Background Sampling:

- 43) In Appendix C, background sampling, BKSB-G8 (0-5") has questionable sample results and appears to be an outlier. In this sample, values for several analytes were rejected. We believe this sample should be analyzed and/or not used in the background determination. What is the reason for so many J-qualified samples?
- 44) Section 3.1.2 and Appendix C describes the sampling conducted for the St. Louis Army Ammunition Plant. The Penrose Park was built in 1910. Because of the possibility of sampling near buildings with lead-based paint, where in the park were samples collected?

- 45) Figure 3.5 should illustrate the direction of the sewer line flow. Please provide that in the revised RIWP.
- 46) The source of groundwater contamination needs to be investigated in the following locations:
Carbon tetrachloride found in ground water (MW 105) at northeast corner of the site. This monitoring well is within the cumulative direction of groundwater flow. And, it is within the direction of the cumulative sewer drainage northeast of the tunnel as it flows toward the guardhouse. Are the sewer lines the source of the contaminant? Cis-1,2 Dichloroethene and Vinyl Chloride were found in a groundwater monitoring well (MW 101) in the southwestern off-site vacant area.
- 47) What manufacturing process resulted in the chromium and cadmium found in soil?
- 48) Manganese was found in monitoring wells MW 104 and MW 102, but not any of the down gradient direct push sample locations or the MW 103 monitoring well. Were these wells properly constructed and screened at the appropriate depth?
- 49) Section 3.1.1: Thorough discussion about the use of the Cleanup Levels for Missouri (CALM) risk-based remediation goals rather than the EPA Region 9 preliminary remediation goals (PRGs) should be provided. We do not see the reference in the CALM guidance indicating that the arsenic clean up value is based on background. Using the 10^{-5} cancer endpoint, EPA Region 9 residential PRG would be 3.9 mg arsenic /kg soil and the industrial PRG, 16 mg/kg. The CALM residential value for arsenic of 11 mg/kg may be too high and not based on background.
- 50) Section 3.1.3: The conceptual site model (CSM) should be modified to include all known contaminant sources.
- 51) Section 3.1.3: The CSM indicates that off-site residents have an incomplete pathway for the inhalation of fugitive dust from the site. DHSS believes that this has not been confirmed by a risk assessment and should not be dismissed.
- 52) Section 3.1.3: Risk to off-site workers, residents, and Job Corps youths should be evaluated for the inhalation of fugitive dust from the site.
- 53) In Section 3.2.2, USACE lists Arsenic as having only the ingestion pathway. Arsenic has a dermal and inhalation component that should be considered as well.
- 54) Section 3.2.3 No samples taken in the transformer station area, Building 244. Please sample in this area.
- 55) Section 3.2.3: Samples should be taken below the sewer lines near Building 220.

- 56) Section 3.2.3: Section 2.5.2 mentions the target analytic list (TAL) metals but never defines them. What are they? Is there another term for RCRA 8 metals that is more commonly used, such as the Toxic Characteristic Leaching Procedure (TCLP) metals? Please define these terms.
- 57) Section 3.2.3: According to Figure 3-1, previous investigations found no lead in the Building 219E or immediately surrounding the building. The USTHAMA (1980) investigation detected high concentrations of lead inside Building 219E. Please explain this discrepancy.
- 58) Section 3.2.3: The sampling plan should consider characterization of hot spots through extensive sampling, field screening, visual observation, or a combination of the above. While the surface soil and subsurface soil maps and table indicate exceedences of screening levels, no hot spot identification procedure was discussed. Please provide this type of analysis in this report or in the RI. This information should also be mentioned in Section 6.3.
- 59) Section 6.0: The exposure point concentration is the 95% Upper Confidence Limit that is generated by the PRO-UCL software mentioned on page 6-2. This is not clear from the text provided:
- 60) Section 6.0: Please provide a list of exposure factors intended for use with each receptor.
- 61) Section 6.0: Additional receptors could include: Job Corps employees, Job Corps youths, off-site residential children and adults, future on-site children and adults, and on-site construction workers and excavation workers.
- 62) Section 6.0: What are the equations that will be used to calculate fate and transport of contaminants?
- 63) In Section 6.4, because of the presence of lead azide and lead styphnate, the Integrated Exposure Uptake Biokinetic Model (IEUBK Model) for children and the Adult Lead Model (ALM) should be used. Please provide inputs and assumptions for the ALM and the IEUBK model for our review. Please see EPA recommendations for exposure values to use in the ALM because values have changed and are explained in the National Health and Nutrition Examination Survey (NHANES III) study published on the Environmental Protection Agency (EPA) website.
- 64) For the human health risk assessment's excavation scenario, the sewer lines should be investigated to provide information on the potential for exposure to contaminated deep soils. How will the information derived from sampling the soil below the sewer line, powder wells, and/or foundations be compiled for use in the risk assessment? Under what worker scenario would the use of this information be appropriate?